U

UART Universal Asynchronous Receive/Transmit. A standard technique for receiving parallel format data and transmitting serially.

ULA Uncommitted Logic Array. Synonymous with PLA (PROGRAMMABLE LOGIC ARRAY).

Ultrasonics signal frequencies which lie outside the range of human audibility. They commence at a 20 kHz frequency.

Unconditional jump synonymous with a BRANCH instruction; a software term.

Unipolar a transistor fabricated from a single type of semiconductor.

Unit record (equipment) punch card equipment, originally developed by Dr Herman Hollerith for analysing American census records at the end of the 19th century. The unit in question refered originally to data regarding one individual or family that could be contained in a single punch card.

United States of America Standards Institute ◊ USASI.

Universal development system a microprocessor development aid that is capable of programming all common types of microprocessors. Optionally they also include IN CIRCUIT EMULATION, analysis facilities and PROM (Programmable Read Only Memory) programming devices, all contained in a console, complete with data storage and printer.

Up time the time during which a machine is operational and available for use. Down time is the reverse. These terms describe a comparative measure of, or use of, machines. See also MTBF (MEAN TIME BETWEEN FAILURE), MTTR (MEAN TIME TO REPAIR).

Update the process of seeking out and amending a record, a FIELD, a file or a document.

USASI United States of America Standards Institute. An early standard-setting body. ◊ ANSI.

Useful life the duration of a component's or device's operational life, before replacement or repair. Measured in hours.

User a person, grouping or company which makes regular use of, or has access to, computer systems.

User group a special interest organisation, formed by, for example, users of a particular manufacturer's products. It functions as a forum for ideas, as an information exchange and as a pressure group.

Utility programs standard useful programs such as sorts, disk to print, etc. Software tools.

uv Ultraviolet radiation. Electromagnetic radiation which occurs between visible light and X-ray frequencies.

uv erasable PROMS/EPROMS Programmable Read Only Memory capable of being erased and rewritten using an ultraviolet radiation technique. ◊ EPROM.

V

V Volts. ◊ VOLTAGE.

VAB Voice Answer Back. An acoustic device which enables a telephone enquiry to generate a spoken response, assembled from digitised signals held in storage (phonemes).

Vacuum tube synonymous with VALVE.

Validate (validity checking) the process of auditing output or results from a circuit or system to ascertain whether they are reasonable and fall within the bounds of probability.

Valve the devices used to implement logic circuits in the first computers. They were designed as either gas filled glass tubes or an evacuated glass tube (a vacuum) in which two or more electrodes were present. Under these conditions current flowed only in one direction. Valves, or vacuum tubes, have now been superseded by other technologies for almost all applications.

Variable any data obtained from measurement which can be altered.

VDT Visual Display Terminal. Synonymous with VIDEO DISPLAY UNIT (VDU).

VDU Visual or video Display Unit. A device for writing programs, inputting data and obtaining the results on a television-type monitor screen. The principal device for communication with a computer user in a real time system. Comprises, at most basic level, screen, keyboard, enclosure, interfacing; it may contain some logic facilities and local storage. Some video display units include a light pen.

Vector (interrupt) in assembling a system, at commissioning time or during regular restart procedures, each peripheral device is given a discrete address or label (or vector). Thus on a peripheral fault condition the system reports a vector interrupt, thereby pointing to the offending device. This information is reported on the console log.

Verification the process of checking that data converted into a media for direct input to a system has been accurately transcribed. In some cases it is done by rekeying in the data on a system that

compares the original and verified data and will pass on match, and halt on any mismatch. This enables fast on-line correction.

Vertical Integration ◊ INDUSTRY MARKETING.

Very Large Scale Integration ◊ VLSI.

Visual Display Terminal ◊ VDT.

Visual Display Unit/Video Display Unit ◊ VDU.

Visual Record Computer ◊ VRC.

Virtual memory a technique offered by many manufacturers which makes the memory size look larger to the program than it actually is. The virtual memory operating system scans programs for code that has already been used or has a low priority. It then moves these parts of the programs into a temporary storage area, unknown to the user or the programmer. It does not generally affect the speed of execution if the total size of programs to be executed does not exceed available memory by more than 25% or so. Thereafter there is an increasing degradation in performance.

VLSI Very Large Scale Integration. A term applied to integrated circuits containing a minimum of 5000 logic gates, or more than 16,000 memory bits.

VMOS, VeeMOS a METAL OXIDE SEMICONDUCTOR (MOS) where the silicon crystals are fabricated with vee shaped groves in addition to nMOS capability. It is even faster than nMOS.

Volatile memory a type of random access memory (RAM) which requires a constant refresh of contents. ◊ STATIC MEMORY.

Voltage (V) a measure of the potential difference, emf (electromotive force), or voltage in a circuit. For practical purposes, potential difference, emf and voltage all mean the same thing. ◊ EXCITE, ENERGISE.

Voltage inverter a device for converting AC or DC signals to a known or predetermined DC value. ◊ SIGNAL INVERTER.

Voltmeter an instrument to measure voltage.

VRC Visual Record Computer. Basically an accounting machine in which data is stored in a printed form or on stripes of magnetic material on record cards. Microcomputers are generally replacing these limited facility machines.

W

W Watts. ◊ WATTS.

Wafer a disk of semiconductor material, often silicon. Ground to either 3 inches diameter or 100 mm diameter, the semiconductor material is then sliced up into disks or wafers, about half a millimetre in thickness (0.020 inches). Semiconductor devices, packaged into integrated circuits, are then fabricated from this base material.

WAIT a software or operating system command which causes the computer to suspend processing until a certain condition has been met.

Warm Start a system restart after a fairly brief pause, normally for no longer than ten to twenty minutes. ◊ HOT START, COLD START.

Warm up a start period to ensure that a circuit or device has reached a thermal value consistent with normal operational requirements. The time taken to reach ambient temperature.

Watchdog (timer) a device which monitors execution times for instructions. It causes an error to be signalled if the normal time is exceeded.

Watts (W) a measure of the power developed by the flow of current through a circuit. One watt is the product of one amp and one volt.

Waveform the shape of a pulse, usually associated with alternating current. ◊ SINE WAVE.

Wiper the moving contact point on a rotary potentiometer. ◊ ROTARY POTENTIOMETER.

Wire gauge the standards determining wire sizes (diameter and cross sectional area).

Wire wrap making electrical contact with wire on metal as opposed to soldering.

Wired-in components which are soldered in place in a PCB as distinct from being plugged in.

Wish list an initial statement of requirements by a potential systems user to ensure that every possible facility which may be

required of the system is documented in advance. ◊ REQUIREMENTS SPECIFICATION.

Word a group of characters treated as a unit and given a single location in a computer memory.

Word length the grouping of bits that correspond to the definition of a word by the supplier. This varies from 4 bits to 64 bits. In normal programming a word is the smallest unit of memory addressed by a high level programming language. At low level or machine level it is easier to address bytes and then to mask bytes and identify and shift bits. ◊ BYTE, HALF BYTE, MASK, BIT, DATA WORD SIZE.

Word processing the use of computer techniques to manipulate text rather than data. ◊ TEXT PROCESSING.

Wraparound an auomatic overflow on to the next available line of contiguous data or text.

Write to create a magnetic record of data in a computer system.

Write after read the process of automatically reading data and then writing it on a magnetic storage device to ensure that the process of reading does not destroy the data.

X

X axis the horizontal line, real or imaginary, which forms the axis for wave shape measurement against the vertical Y axis. Also used for alignment on graph plotters, Cathode Ray Tubes and other display devices.

X punch synonymous with the 11 punch in an 80 column punch card. Used to assign a minus value.

X ray electromagnetic radiation of a high frequency.

Xerography the principle involved in normal plain paper copying where a charge pattern is produced by exposing a master document to ultra violet light and applying appropriately charged carbon base powder to the copy. It adheres to the charged area to form a facsimile of the original.

X–Y plotter a graphical output device in which results are recorded by moving the writing pen across the paper in the direction of the X and Y coordinates.

Y

Y axis the vertical axis of a waveform. ◊ X AXIS.

Y punch a punch in the 12 row of an 80 column punch card.

Yield a measure of the efficiency of the integrated circuit fabrication process, determined by the ratio of the number of acceptable dies completed to the number of circuits started in semiconductor manufacture.

Z

Z ◊ IMPEDANCE.

Zener diode a DIODE using the principle of zener breakdown in which at a known voltage a sharp increase in current is observed. Used to regulate voltage.

Zero access store a very fast type of memory, or area of storage, which can provide the processor with data at speeds as fast as the central processor is able to process that data.

Zero potential earth (ground). ◊ EARTH, VOLTAGE.

Zero suppress the suppression of printing or displaying zeros that occur before the first significant digit, to ease interpretation of data.

Zerofill filling in blanks with zeros within a defined FIELD, BYTE or WORD. This ensures that no old data remaining in memory can influence the contents of storage. It is also an alternative to shifting for decimal point alignment.

Zone an area of storage; the top two punch positions on an 80 column punch card.